

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently Amended): An intumescent fire retardant system for use in polymeric moldings, comprising, on the basis of 100 parts by weight blended mixture of a polymer component comprising:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α-olefin-containing copolymer having a density ~~less than the density of the high density polyethylene~~ in the range of 0.870-0.910 g/cm³, wherein the system comprises 20-45 parts of the high density polyethylene and 0-15 parts of the α-olefin-containing copolymer for a total of 20-45 parts polymeric binder;

5-25 parts of a nitrogenous gas-generating agent selected from the group consisting of amines, ureas, guanidines, guanamines, s-triazines, amino acids, salts thereof, and mixtures thereof, wherein the salts are selected from the group consisting of phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates and mixtures thereof;

10-35 parts of a water vapor-generating agent;

1-5 parts of an antioxidant; and

0-15 parts of a reinforcing agent,

wherein the system is essentially halogen-free.

2. (Currently Amended): The fire retardant system of claim 1 wherein the α-olefin-containing copolymer is a copolymer of ethylene with one of butene, hexene and octene having a density in the range of 0.870-0.910 g/cm³.

3. (Currently Amended): The fire retardant system of claim 1 wherein the α-olefin-containing copolymer is a linear low density ethylene octene copolymer having a density in the range of 0.870-0.910 g/cm³.

4. (Canceled)

5. (Original): The fire retardant system of claim 1 wherein nitrogenous gas-generating agent is an ammonium salt, a melamine salt, or a mixture thereof.

6. (Original): The fire retardant system of claim 1 wherein the nitrogenous gas-generating agent is selected from the group consisting of: melamine phosphates, melamine polyphosphates, melamine pyrophosphates, melamine cyanurates, ammonium phosphates, ammonium polyphosphates, ammonium pyrophosphates, ammonium cyanurates, and mixtures thereof.

7. (Original): The fire retardant system of claim 1 wherein the water vapor-generating agent is selected from the group consisting of: hydrated magnesia, hydrated alumina, intercalated graphite, and mixtures thereof.

8. (Original): The fire retardant system of claim 1 wherein the antioxidant is selected from the group consisting of: distearylthiodipropionate, a hindered phenol, and mixtures thereof.

9. (Original): The fire retardant system of claim 1 wherein the reinforcing agent is selected from the group consisting of: glass fibers, mica, titanium oxide and mixtures thereof.

10. (Original): An intumescent fire retardant polymeric moldable composition comprising, on the basis of 100 parts by weight blended mixture:

55-80 parts of a polymeric matrix; and

20-45 parts of the intumescent fire retardant system of claim 1.

11. (Original): The intumescent fire retardant polymeric composition of claim 10 wherein the polymeric matrix is a thermoplastic polymer selected from the group consisting of: polypropylene, nylon, polystyrene, a styrene-acrylonitrile copolymer, and a butadiene-styrene-acrylonitrile terpolymer.

12. (Original): The intumescent fire retardant polymeric composition of claim 10 wherein the polymeric matrix is a thermoset polymer selected from the group consisting of a polyurethane and an epoxy.

13. (Original): The intumescent fire retardant polymeric composition of claim 10 wherein the polymeric matrix is a thermoplastic polymer selected from the group consisting of: injection molding grade high density polyethylene, blow molding grade high density polyethylene, and extrusion molding grade high density polyethylene.

14. (Original): An intumescent fire retardant system for use in polymeric moldings, comprising, on the basis of 100 parts by weight blended mixture:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α-olefin-containing copolymer having a density in the range of 0.870-0.910 g/cm³, wherein 20-45 parts of the blended mixture is the high density polyethylene and 0-15 parts of the blended mixture is the α-olefin-containing copolymer;

15-25 parts of a nitrogenous gas-generating agent selected from the group consisting of an ammonium salt, a melamine salt, or mixtures thereof, wherein the salts are selected from the group consisting of phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates and mixtures thereof;

20-30 parts of a water vapor-generating agent selected from the group consisting of hydrated magnesia, hydrated alumina, intercalated graphite, and mixtures thereof;

1-5 parts of an antioxidant selected from the group consisting of distearylthiodipropionate, a hindered phenol, and mixtures thereof; and

3-10 parts of a reinforcing agent selected from the group consisting of glass fibers, mica, titanium oxide and mixtures thereof,

wherein the system is essentially halogen-free.

15. (Currently Amended): The fire retardant system of claim 14 wherein the α -olefin-containing copolymer is a copolymer of ethylene with one of butene, hexene and octene having a density in the range of 0.870-0.910 g/cm³.

16. (Currently Amended): The fire retardant system of claim 14 wherein the α -olefin-containing copolymer is a linear low density ethylene octene copolymer having a density in the range of 0.870-0.910 g/cm³.

17. (Original): The intumescent fire retardant polymeric composition of claim 14 wherein the polymeric matrix is a thermoplastic polymer selected from the group consisting of: polypropylene, nylon, polystyrene, a styrene-acrylonitrile copolymer, and a butadiene-styrene-acrylonitrile terpolymer.

18. (Original): The intumescent fire retardant polymeric composition of claim 14 wherein the polymeric matrix is a thermoset polymer selected from the group consisting of a polyurethane and an epoxy.

19. (Original): The intumescent fire retardant polymeric composition of claim 14 wherein the polymeric matrix is a thermoplastic polymer selected from the group

consisting of: injection molding grade high density polyethylene, blow molding grade high density polyethylene, and extrusion molding grade high density polyethylene.

20. (Original): An intumescent fire retardant thermoplastic moldable composition comprising, on the basis of 100 parts by weight blended mixture:

55-80 parts of a thermoplastic matrix; and

20-45 parts of an intumescent fire retardant additive comprising on the basis of 100 parts by weight blended mixture:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α-olefin-containing copolymer having a density less than the density of the high density polyethylene;

5-25 parts of a nitrogenous gas-generating agent selected from the group consisting of amines, ureas, guanidines, guanamines, s-triazines, amino acids, salts thereof, and mixtures thereof, wherein the salts are selected from the group consisting of phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates, and mixtures thereof;

10-35 parts of a water vapor-generating agent;

1-5 parts of an antioxidant; and

0-15 parts of a reinforcing agent,

wherein the thermoplastic polymer matrix and the intumescent fire retardant additive are each essentially halogen-free, and wherein the

composition exhibits a peak heat release rate of less than 500 kW/m² as measured by the ASTM E1354 cone calorimeter method.